DOMINICA

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

AND

FORESTRY

FOR THE YEAR

1959

DOMINICA
PRINTED BY THE GOVERNMENT PRINTER AT THE GOVERNMENT PRINTERY, ROSEAU.

14 MAR 1963

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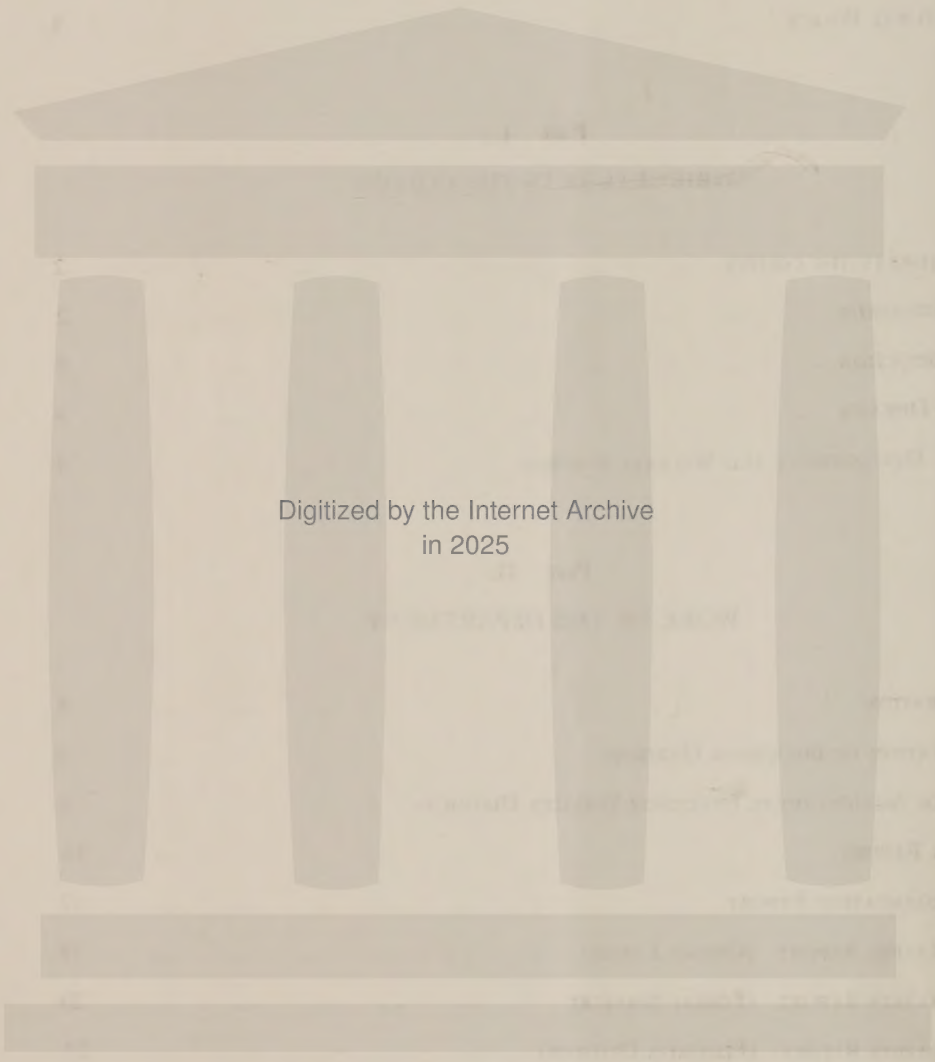

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ADMINISTRATION REPORT

OF THE

DEPARTMENT OF AGRICULTURE

AND

FORESTRY

1959

INTRODUCTION

Staff Appointments:

1. There were three new appointments made to the Senior Staff during the year. Mr. R. B. Blatcher, M.R.C.V.S. was appointed to the post of Veterinary Officer on contract for 3 years. Mr. Blatcher arrived in Dominica on 27th October 1959 and assumed duty; Mr. J. B. Yankey, D.I.C.T.A., was appointed to the vacant post of Agricultural Assistant with effect from 1st July, 1959.

2. Mr G. Farley was appointed to the post of Curator, Botanic Gardens on contract for three years to rehabilitate the Botanic Gardens. Mr. Farley arrived in Dominica on 1st September, 1959.

3. Mr. A. E. Samuel, Agricultural Instructor Grade II was promoted to the post of Agricultural Instructor Grade I with effect from July 1959.

4. *Staff Transfers and Resignations.* Mr. C. N. Chappel, Veterinary Officer resigned on 9.5.59 at the end of his contract term of service; Mr. J. Talma, Agricultural Assistant, Livestock, also resigned on 1st July 1959.

AGRICULTURAL POLICY

5. The policy of the Department remains unchanged and may be summarized under the following main heads:—

(i) The Conservation of the agricultural and forest resources;

(ii) The maintenance, expansion and improvement of the Colony's main export crops;

(iii) The organisation and improvement of peasant agriculture;

(iv) The re-organisation and improvement of the livestock industry;

(v) Greater efficiency in production, processing and distribution of agricultural products;

(vi) Improvement in the form of land tenure.

6. The implementation of these main heads of policy progresses as circumstances, funds and the availability of trained staff permit.

PART I

AGRICULTURE IN THE COLONY

7. *Weather conditions:* The early part of the year up to June was unusually dry with well distributed rainfall during the latter half. The severe dry spell in the first half of the year had a deterrent effect on newly planted cacao and banana fields in the coastal areas.

8. The mean maximum and minimum temparatures for 1959 were 89 deg. F and 69 deg. F respectively.

9. The mean barometric pressure was 29.959 inches of mercury. The highest recorded was 30.107 inches on 13th February, and the lowest 29.806 inches on 17th November.

10. The mean relative humidity was 72.5%.

11. The highest rainfall recorded in 24 hours was 3.26 inches on 5th July.

MAJOR INDUSTRIES

12. The total value of domestic exports in 1959 was $6,513,168, a decrease of 1% as compared with the 1958 value. This was a reasonably satisfactory achievement bearing in mind the adverse weather conditions experienced during the first half of the year. A table of exports appears at Appendix II of this Report.

13. *Lime Industry:* Increasing interest was evidenced in the rehabilitation of lime orchards due to favourable prices offered, but adverse weather conditions were reflected in a falling off in production for export, as shown in the following table:—

Products	1958	1959
Settled Lime Juice	582,000 gals.	295,000 gals.
Lime Juice Top Pulp	145,000 gals.	108,000 gals.
Pomace of Dried Lime Skins	274,000 lbs.	153,000 lbs.
Distilled Lime Oil	43,000 lbs.	20,000 lbs.

14. *Other Citrus:* The Grapefruit and Orange crops were reasonably good, and exports rose from 14,337 crates of Grapefruit in 1958 to 23,000 crates in 1959; and 4,943 crates of Oranges in 1958 to 5,000 crates in 1959. Exports of canned grapefruit segments however, fell from 426,000 lbs. in 1958 to 140,000 lbs in 1959, although this was in part made up by the export of 5,000 gallons of Canned Grapefruit juice.

15. *Bananas:* In spite of adverse weather conditions, banana exports reached an all time record of 2,049,000 stems valued at $4,521,000, an increase of 25% over the 1958 total. This very creditable achievement was in part due to the considerable improvements effected by the Leaf Spot Control Organization of the Dominica Banana Growers' Association in the training and organization of spraying teams in the field. Also contributory to this considerable increase in production was the attention paid by most growers to better systems of husbandry. The following table shows exports over the past 9 years:—

Year	Stems Exported	Value ($)
1951	576,770	720,527
1952	856,856	1,073,426
1953	1,135,746	1,792,858
1954	1,352,010	2,308,320
1955	1,374,260	2,484,931
1956	1,803,000	3,793,000
1957	1,398,000	3,290,000
1958	1,638,000	3,718,000
1959	2,049,000	4,521,000

16. *Cocoa:* New areas in cocoa totalling approximately 163 acres, and involving the propagation and distribution of 49,084 rooted clonal cuttings from the Agricultural Department's Propagators at Hillsborough, Londonderry and the Botanic Gardens, were established. Unfavourable weather conditions, however, contributed to a decrease in exports of 19,000 lbs. prepared beans as compared with 1958. The actual exports for 1959 being 314,000 lbs. as against 333,000 lbs. in 1958. Plant propagation and distribution, during the period under review was, as follows:—

	Hillsborough	Londonderry	Botanic Gardens
No. of plants propagated	36,937	14,219	11,947
No. of plants distributed	34,021	9,879	5,184
Balance carried Forward	2,916	4,340	6,763

17. *Coconuts:* There was a slight reduction in exports of Copra in 1959 as compared with 1958; 979 tons in 1959 as against 985 tons in 1958. However, the value of the 1959 exports were some $12,000 higher than that for 1958. The following table shows the quantities and values of coconut products exported:—

Product	1958		1959	
	Quantity	Value $	Quantity	Value $
Copra	985 tons	295,000	979 tons	307,000
Crude Oil	5,283 gals.	11,633	5,133 gals.	11,497

18. *Vanilla:* Interest in this crop has been steadily declining over the past few years, although there was some improvement in exports in 1958 which have again shown some reduction in 1959. Exports for 1959 were 11,200 lbs. as against 11,500 lbs. in 1958.

19 *Livestock:* Once again it is regretted to report that little interest has been shown in regard to livestock rearing generally. Indeed, apart from a few individual poultry enterprises no expansion in local production has been evident. It is the expressed view of many potential producers that the retention of control prices is, and will continue to be a serious deterrent to progress with animal rearing in this island.

20. *Local Food Crops:* Production of almost all types and varieties of local food crops and market garden vegetables continues to be inadequate. Some interest has, however, been shown in certain areas as a result of the Guaranteed Price Marketing Scheme which came into being during the latter part of the year. Briefly, prices were guaranteed for the following non-perishable items:—

Yams
Farine
Tannias
Red Kidney Beans
Pigeon Peas

21. Organised purchasing in rural areas was carried out on a weekly basis by a truck provided under C.D. & W. Scheme D.3677. During the period under review, the following quantities of produce were purchased and sold:—

Statement of Foodstuffs purchased and amounts realised on sale 28th July, 1959—31st December 1959.

Foodstuffs	Foodstuffs Purchased				Foodstuffs Sold			
	Rural Buying Centres	G.M.D. Roseau	Total	Value		Value	Stock on Hand	Loss in wt. during storage
Tannias lbs. ..	16,158½	1,647½	17,805	$1,082.94	18,022	$1,262.36		913½
Yams " ..	389½	154½	584	36.59	571½	40.02		12
Red Beans " ..	1		1	26	1	.27		
Farine Pints ..	4,185½	42,266	46,452	6,386.69	21,833½	3,558.02	24,618½	
				$7,506.48		$4,860.67		

22. *Visit of Federal Economic Survey Team:* From March 3rd to 20th 1959, a visit was paid be a Federal Government Economic Survey Team under the leadership of the Federal Agricultural Adviser and consisting of the Senior Economist, the Agricultural Economist, the Housing Adviser, the Forestry Adviser, the Fisheries Adviser, a Research Assistant from the Economic Planning Division and an Administrative Officer who performed secretarial duties. A report has since been submitted and is currently being studied.

PESTS AND DISEASES

23. Leaf Spot disease (*Cercospora musae*) of bananas, and Banana Borer (*Cosmopolites Sordidus*) were the principal menaces. There were also, however, indications of Nematode infestation of bananas in many areas.

24. Through funds and technical assistance provided under Colonial Development and Welfare Research Scheme R. 881 and by the Commonwealth Institute of Biological Control respectively, investigational work was continued. Further introductions of *Leionota quadridentata* and *Plaesius javanus* were made, in an effort to control the Banana Borer. It was not possible, however, to proceed with introduction of predators on Coffee Leaf Miner (*Leucoptera coffeella*) due to the difficulty in obtaining material.

25. *Rat Control:* The distribution of Warfarin Rat Bait in the principal agricultural districts and to householders was continued. The principal damage done by this pest to the agricultural industry is in respect to Cocoa.

COLONIAL DEVELOPMENT AND WELFARE SCHEMES

26. The following Schemes were in operation during the year:—

Scheme D.2621	—	Agricultural Stations
D.2856	—	Cocoa Propagation
D.3012	—	Commissioner for Agricultural Development
D.2717 (47)	—	Establishment of Pangola Grass Plots
R.881	—	Control of Insect Pests
D.3972	—	Training of Officer in Forestry at Cyprus College
D.3448-13	—	Establishment of Coffee Nursery—Rosalie
D.3677	—	Marketing of Local foodstuffs
D.3196	—	Purchase of Tractor
R.940	—	Soil Survey
D.3737	—	Soil Conservation Works
D.2717 (37)	—	Starch Processing Mill for LaPlaine
D.3448 (12)	—	Purchase of Audio Visual Aids Equipment
D.3835	—	Rehabilitation of Botanic Gardens
D.3735 (21)	—	Training of Jones & Alie at E.C.F.I.
D.3735 (27)	—	" R. S. Fadelle in Agricultural Census Surveys.

Part II

WORK OF THE DEPARTMENT

ADMINISTRATION.

27. There were no major changes in the organisation and distribution of the work of the Department during the period under review. Staff training continued, and no less than 5 trainees were in attendance at the E.C.F.I., and 2 at the I.C.T.A. during this period.

REHABILITATION OF BOTANICAL GARDENS

28. In the first instance it was found necessary to commence by establishing nurseries of shrubs, climbers and roses of locally grown stock. A site of a quarter ($\frac{1}{4}$) acre was selected and prepared with a suitable media for the purpose. Having prepared the site, cuttings of the various shrubs and creepers were propagated. A selection of rooted rose plants and cuttings was made at Her Majesty's Prison, by the kind permission and assistance of the Superintendent of Prisons. Six hundred (600) plants were obtained and planted in nursery beds from which satisfactory results were achieved.

29. *Rehabilitation continued.*

The following were hewn down and cleared in preparation for development.

(*a*) A quarter acre plot of Coffee varieties

(*b*) A quarter acre plot of Black Pepper

(*c*) A quarter acre plot of Cocoa Clones

(*d*) A quarter acre plot of Immune Citrus

(*e*) One eighth acre plot of Guavas

(*f*) Three eighths acre plot of Citrus

(*g*) Half acre plot of Nutmeg

On continuing the Report the following works were completed.

30. One potting shed 14ft. x 9ft. x 9ft. was erected. One seed frame 60ft. x 5ft. was also erected the purpose of which is to raise delicate seedlings which would not normally thrive on open grounds. The former is of masonry construction and is now in use. Eighteen beds with plastic covering were also made to protect the young seedlings.

31. *Rose Garden:* About a quarter of an acre of ground near the main office was selected at a rose garden. As this area was of a sloping nature, it had to be terraced into four (4) levels, and these levels revetted with stones.

Thirty-two (32) beds of various dimensions were then dug to a depth of 2½ ft. During this operation quite a large quantity of stone had to be removed and expenditure on this operation was considerable.

Apart from this work seven (7) beds were prepared in the main office grounds to receive surplus roses and other plants.

32. The following important trees in the decorative section were earthed up as it was noticed that the trees were deteriorating.

(1) The Ficus Benjamin (2) Ficus Altisima
(3) Terminalia trees (4) Alstonia Scholaris
(5) African Oak (6) Baikiaea Insignis etc.

The above mentioned trees suffered a considerable set back due to exposure of feeder roots.

33. The wall along Bath Road —North Western corner which is 140 ft. long was raised by 3 ft. and the existing wicker gate built in.

34. The rockery adjoining the Convent grounds was cleared and terraced in preparation for annuals.

35. Four hundred and twenty feet of Acalypha hedge was removed and replaced by Bougainvillaea varieties on either side of the main gate.

36. A clump of unsightly palms near the main gate was removed leaving three (3) central palms. A fifteen (15) feet radius bed was prepared to receive annuals, the site was then planted up with Dahlias.

37. Sixteen beds varying from 12ft. to 21 ft. by 2 ft. 6 inches deep were prepared to receive annuals and bulbs such as Gladioli and Dahlias.

38. *Carriage Drive—Botanical Gardens.* At some points along the drive eroded verges were refilled with soil conveyed to the spot.

The Saman trees along the main lawns were pruned thoroughly.

39. The Eastern border of the Cricket pitch was thinned out and spreading creepers removed from the trees. A considerable quantity of old wood was removed, and the place tidied up. The North Eastern corner of the main lawn was tidied up and maintained.

40. *Lawns.* The lawns were maintained in good order since the introduction of a new Ransomes Motor Mower—an operator was appointed.

41. The Pond near the Cemetry was enlarged, and quite a lot of mud removed by Bulldozer. This mud was used to raise the path leading to the office. The borders on the left hand side leading to the pond were cleared of old shrubs and were partially prepared to receive a planting of young stock.

42. *Government House approach Grounds.* Work was commenced at this area. Several old trees were removed by Bulldozer. The entire area was enclosed by a masonry curb and iron railings to a height of 3 feet. Two gates were made, and two iron Pergolas for roses were erected. The area enclosed was thoroughly dug to a depth of 1 foot, stones removed and the entire area levelled.

EXTENSION SERVICES

43. The island remained divided into three principal agricultural districts. These are known as the Northern District, the Central District and the Southern District.

44. The Extension Services Division of the Department comes under the Control of the Assistant Superintendent of Agriculture, and has a complement of three Agricultural Assistants and nineteen Agricultural Instructors.

45. In addition, there are five District Agricultural Stations:— Londonderry and Portsmouth in the Northern District; Colihaut in the Central District; and Grand Bay and LaPlaine Agricultural Stations in the Southern District.

46. There is also an Agricultural Assistant (Cocoa) in charge of all cocoa propagation units and nurseries, who renders advice and assistance to the Extension Services Staff in all matters pertaining to cocoa propagation and field practices.

47. The following are the reports on the principal Agricultural Districts:—

NORTHERN DISTRICT

48. The Northern Agricultural District consists of the Parishes of St. John, St. Andrew and a small portion of St. David known as the Carib Reserve.

49. *Staff:* The Staff complement during the period under review was, as follows:—

J. H. Elwin, D.I.C.T.A. Agricultural Assistant in charge.

F. P. Carbon	Grade I	Instructor —	Marigot.
A. E. Samuel	Grade I	" —	Portsmouth
E. W. Jones	Grade III	" —	Wesley
J. A. Defoe	Grade III	" —	Londonderry.

Mr. E. W. Jones went off in September for training at the Eastern Caribbean Farm Institute. Mr. A. E. Samuel returned from the E.C.F.I. in May having completed the 1957/59 training course.

50. *Weather Conditions:* The year 1959 was a very favourable year for most crops. There were no marked periods of exceptionally dry weather as was experienced in other parts of the island. Winds hardly attained gale force to do damage even to bananas. The annual rainfall for the year under review was 74.34 inches at Londonderry and 87.49 inches at Portsmouth. The distribution was fairly even throughout the twelve months.

51. *Visits:* Four hundred and fifty-nine visits were made to small holdings and estates, while thirteen visits were made to school gardens in the district.

These visits were mainly in connection with soil conservation work, inspections of sites prior to allocation of planting material, and general advice on the cultivation of the various crops and animal husbandry.

52. *Meetings:* There were twenty 4-H Club Meetings held among the Clubs of Wesley, Woodford Hill and Calibishie. The highlight of these clubs' activities however, was the formal inauguration of the Woodford Hill 4-H Club. Seven wayside group meetings were held among small farmers on various subjects, namely banana cultivation, poultry rearing and food production.

53. *Field Day:* One field day was held to demonstrate the use of the International Crawler Tractor with implements attached.

54. *Valuations:* Ten valuations of crops were carried out for the Public Works Department on road construction sites, while three arbitrations were undertaken in accordance with the provisions of the Agricultural Small Tenancies Ordinance.

CROPS.

55. *Bananas:* The year saw a substantial increase in the production of bananas due chiefly to better leaf spot control and very favourable weather. Field demonstrations covering the different aspects of cultivation were done on several holdings.

56. *Cocoa:* The production of this commodity is on the increase. Farmers were given guidance and instructions in the cultivation of the clonal material distributed to them.

57. *Coffee:* Robusta coffee introduced from Trinidad has so far been fairly promising. Only a limited number of farmers received plants during the period under review.

58. *Citrus.* With the advent of the Transinsular Road, many farmers have become interested in the cultivation of limes. The orange and grapefruit crops were fairly good. As with other crops, farmers were instructed in and shown the correct planting methods of the plants distributed to them.

59. *Coconuts:* Copra production is on the increase as young cultivations gradually come into bearing. There was some concern among big coconut growers about the incidence of bud-rot in their coconut cultivations. Control measures adopted so far have yielded promising results. The incidence of this disease is not regarded as being high.

60. *Food Crops & Vegetables:* Food production was given a spurt by the launching out of the Government Marketing Department's guaranteed price support scheme. There were indications everywhere that farmers were planting more tannias and yams, but red beans to a lesser extent.

Green vegetables were still however being grown in very small quantities. Apparently good supplies of these commodities can only be had with improved marketing facilities.

61. *Pasture Development:* It is gratifying to place on record the fact that small farmers are becoming conscious of the need to establish better pastures on their holdings. In the course of the year about six acres of pangola grass were established on four different holdings, with government financial aid. So far only one estate owner has endeavoured to grow pangola under coconuts for sheep rearing.

62. *Soil Conservation:* During the course of the year a soil conservation project got under way, whereby fifty per cent financial assistance was given to farmers to adopt soil conservation measures on their holdings.

Twelve farmers participated in this scheme and the work done on their holdings included laying down of contour drains, planting of grass barriers, and cutting of narrow reverse sloped terraces.

On one holding a certain amount of banana rehabilitation work was undertaken along with necessary soil conservation measures.

At the end of the year under review 12,503 feet of contour drains were dug; 610 ft. of reverse slope terraces; and 1,100 ft. of grass barriers were planted.

63. *Pests and Diseases:* The diseases reported during the year were leaf spot disease of bananas, black pod of cocoa, bud rot of coconuts, roup in poultry and canker in rabbits. The chief pests were citrus weevil, banana borer and slugs in vegetable gardens and citrus nurseries.

64. *District Experiments:* The cocoa manurial trial at Melville Hall Estate was maintained in good order.

65. *Soil Conservation Instructors:* The four soil conservation instructors still continued to come under the executive control of the District Agricultural Assistant. One of these was posted on the Portsmouth Agricultural Station, while the other three were engaged in crown land surveys, and to a lesser extent in agricultural extension work. The execution of the soil conservation programme however was to a large extent entrusted to these instructors. A brief summary of the work undertaken by them can be seen below.

Holdings Visited	Crown Land Inspections	Patrols	Disputes	Squatters Located	Miscellaneous Demonstrations
January—March 96	22	49	6	1	62
April—June 93	37	13	1	—	22
July—September 55	8	6	—	—	3
October—December 98	5	4	—	—	7

66. These demonstrations covered the various cultural operations carried out in growing citrus, cocoa, coconuts and bananas.

67. *Agricultural Stations: Londonderry.* The Agricultural Stations continued to function as usual, and provided facilities for plant distribution, demonstrations, stud services, and investigational work.

68. *Bananas:* Of the few acres of bananas which were maintained in the previous year, two and a half acres were cut down. Two acres were eventually replanted; one portion being under coconuts, and another between citrus and third in a pure stand.

For the year 33,572 lbs. of bananas were sold valued at $1511.32.

69. *Green Vegetables:* A limited quantity of green vegetables were grown on trial from August to December. This coincided with a period when 35.47 inches of rain fell.

The varieties grown were:—

(*a*) Cornelli Hybrid Cucumber.
(*b*) " Imperial Watermellon
(*c*) " Cantaloupe
(*d*) " Globe (Yellow resistant) Cabbage.
(*e*) " Big Early Hybrid Tomatoes.

70. The cucumbers were harvested in October, and a yield of 46 lbs. was obtained from an area 1800 sq. ft. in size. The average weight per cucumber was 1.25 lbs. The average weight per watermelon was 4.5 lbs. and the cantaloupe 2 lbs. The cabbages germinated well, but were destroyed by slugs. The big early hybrid tomatoes gave fairly promising results with the first crop, but soon succumbed to leaf mould (*Cladosporium Julvum*). A slight attack on the fruits by the fruit worm (*Heliothis obsoleta*) was also observed.

The total yield obtained however, was 83.5 lbs. from an area 40'x160' with trees planted at 2'x3' apart.

71. *Strip Cropping Demonstration:* The strip cropping demonstration on the hillside was maintained. Crops grown included beans and corn, sweet potatoes, cassava, yams, plantains and tannias and grass.

72. *Plant Distribution:* The following plants and planting material were distributed in the course of the year:—

West Indian Limes	1,985
Washington Navel Oranges	164
Valencia Oranges	18
Marsh Grapefruit	21
Foster Pink grapefruit	25
Thompson Pink "	23
Robusta Coffee	2,412
Julie Mangoes	17
Bombay "	2
Black Pepper	14
Vegetable Seed	349 packets
" Seedlings	325

73. *Cocoa Propagation:* The production of cuttings was stepped up slightly in 1959. No less than 14,219 plants were produced as against 12,000 in 1958. Total distribution in 1959 was 9,829 from Londonderry plus 4,925 from the Hillsborough Station.

74. *Stud Services:* Stud service facilities were made available to farmers by the maintenance of two bulls, one of which died in the course of the year, one boar, one buck goat and one ram sheep.

Services recorded were as follows:—

	1958	1959
Bull	33	25
Boar	1	10
Ram	6	7
Buck	7	1

75. *Investigational Work:* The N.P.K. banana fertiliser experiment had to be abandoned because of plant losses. The pangola grazing trial which was brought to a close in 1959 yielded fairly

satisfactory results. The trial started off in 1958 with seven calves ranging in age from seven months to one year, grazing 1.3 acres of pangola grass on a rotational basis. At the end of the trial the overall liveweight gains was 775 lbs. in 12 months.

76. *Portsmouth Agricultural Station: Bananas.* Two banana plots were replanted during the year; one using the double row system of planting and the other a straight 10'x10' spacing method. The object of this trial is to compare the costs of cultivation as well as yields of the two planting methods.

77. *Green Vegetables.* A green vegetable trial similar to the one at Londonderry was laid out on the Portsmouth Agricultural Station, but results were very disappointing. Most of the vegetables failed to survive after germination due to damage by pests and disease. The cucumbers were destroyed by downy mildew while the tomatoes succumbed to bacterial wilt. The cabbages were destroyed by the diamond back moth.

78. *Strip Cropping Demonstration:* There was the usual strip cropping demonstration on the hillside, where a combination of grass and food crops were grown on alternate strips.

79. *Plant Distribution:* The following units of planting material were distributed from the station:—

West Indian Limes	1,736
Washington Navel Oranges	363
Marsh Grapefruit	416
Julie Mangoes	72
Robusta Coffee	1,050
Yams	20 lbs.
Tephrosia seeds	44 lbs.
Red Beans	6.5 lbs.
Pigeon Peas	3.5 "
Vegetable seeds	729 packets
Plantains	12 plants.

80. *Investigational Work:* The N.P.K. Banana fertiliser experiment was brought to a close in the course of the year. All data has been submitted to the Research Officer for analysis. The pangola trial on this station at the end of twelve months stood as follows:—

The total liveweight gains per acre was 479 lbs. A few more animals could have been kept on this trial but they were not readily available.

81. *Acknowledgements:* My deep appreciation goes out to the staff in the Northern district, who have worked hard and conscientiously at all times.

82. *Central District:* This District is comprised of the parishes of St. Peter, St, Joseph, St. Paul and portions of the parishes of St. George and St. David. In brief, its northern boundary is an imaginary line between Pointe Ronde on the western coast and the Mangini River in the east; and its southern boundary a line along the right bank of the Roseau river to the northern boundaries of the Rosalie Estate in the east.

83. *Field Policy* may be summarised, as follows, to demonstrate and teach:—

(*a*) measures for maintaining basic soil fertility—soil conservation, crop rotation, keeping of livestock;
(*b*) establishment of orchard crops,
(*c*) improved cultural methods and or the use of new proven varieties.
(*d*) the importance of proper methods of disease and pest control,
(*e*) the need for quality improvement of produce.

84. *Weather Conditions:* For the first six months of the year, the distribution of rainfall was poor, with monthly totals of 1.83, 2.44, 1.36, 1.89, 0.85, 0.63 being recorded at the Colihaut Station. Comparative returns from the Goodwill Nursery were 5.43, 4.90, 3.65, 2.99, 2.50, 3.13. These unexpected weather conditions caused a delay in the commencement of the planting season for permanent crops by about two months. Furthermore, abnormally low rainfall for the months of November and December had an adverse effect on new plantings, particularly in the coastal areas.

85. *Visits to Holdings:* It is considered that the visit of a field officer to a holding where he can contact its occupier to be the most important and effective of extension methods, as advice can be coupled with demonstrations. In this connection 928 visits were made to 309 holdings. Whilst there was a drop in the number of holdings visited, the average number of visits per holding rose from 2.4 in 1958 to 3 in 1959. 73.8% of the visits were in connection with the expanded planting of crops, and 21.5% with Soil Conservation measures.

86. *Crops:* Crops receiving major attention were Cocoa, Limes and Bananas.

87. *Bananas:* Interest in this crop has remained constant over the past three years. 107 demonstrations on 48 holdings accounted for 11.5% of the activities of the Field Staff. Emphasis in the early part of the year was on assistance in the control of Leaf Spot disease, the incidence of which was reported in 1958 to be on the increase. Proper spacing of plants in the field had a fair measure of attention. Periodic visits were made to Banana Buying points for the purpose of observing the quality and condition in which fruit was tendered by producers.

88. *Cocoa:* It would appear that there was not as much interest shown by the planting community, possibly due to unfavourable weather conditions. The prevailing prices offered by exporters might also be responsible for this apparent falling off in interest. Pruning, however, was appreciated as an essential practice for ensuring better yields. 43.1% of the 269 demonstrations on 149 holdings were on the approved methods of pruning as against 15% two years ago.

89. *Limes:* The price of $6.50 per barrel continued to stimulate the demand for planting material. As a result more attention was given to field activities by growers in this district.

90. *Coconuts:* Coffee, Grapefruit, Oranges and Root Crops also received attention.

SOIL CONSERVATION

91. Two hundred visits were made to 81 holdings. Work completed on 14 holdings was, as follows:—

Contour drains	20,865 ft.
Stone barriers	3,445 "
Grass barriers	707 "
Stone terracing	402 "

LIVESTOCK

92. *Cattle:* There was an attempt at upgrading in certain localities. For that purpose a keeper of livestock in the Salisbury district and another in the Massacre area each obtained a young Jersey bull from the Central Stock Farm.

93. *Pigs:* Five gilts and nine young boars were purchased from the Central Stock Farm for improving size and quality by individuals in the Mahaut and Wotten Waven areas.

94. *Poultry:* There was sustained interest in the keeping of poultry on the deep litter system, particularly in the Goodwill area. Numbers were maintained with the use of imported and locally produced chicks.

VANILLA EXAMINATIONS

95. Twelve shipments comprising 8,048 lbs. cured vanilla beans were examined by the Agricultural Assistant and considered fit for export.

CROP VALUATION

96. The assessing of compensation for crops destroyed in the course of Road and buildings construction by the Public Works Department was determined on nine holdings.

AGRICULTURAL SMALL TENANCIES

97. Two arbitrations were conducted under the terms of the Agricultural Small Tenancies Ordinance, one of which was finally decided by the Magistrate.

PRODUCE INSPECTION

98. One thousand one hundred and seventy-four (1,174) applications for Produce Sellers Licenses were vetted by the Agricultural Assistant.

ADULT EDUCATION

99. The Agricultural Assistant gave a series of lectures on agricultural topics under the auspices of the Education Department at the undermentioned places:— Pichelin 1, Pte. Michel 2, Roseau 1, Credit Union Club 2, Trade Union Hall 1, Pottersville 1, Massacre 1, Mahaut 1, Salisbury 1.

SCHOOLS

100. Periodic visits were made to certain schools and, where land space permitted, school garden demonstrations were given thereon.

COLIHAUT AGRICULTURAL STATION

101. This station continued to serve as a demonstration in soil conservation and strip cropping; also as a plant distribution, and a stud service centre.

102. *Weather Conditions.* Recorded was a rainfall of 37.45 inches of which 23.15 inches were were registered over the period July to October. The 1957 rainfall was 58.31 inches and that of 1958, 57.26.

103. Irrigation, however, made possible the production of such vegetables as cabbage, lettuce, tomatoes, turnips, sweet pepper etc. and short term crops as corn, cassava, beans, yams, potatoes, onions.

104. Plots of limes, grapefruit, tangerines, oranges, bananas and aloes were maintained.

105. *Grasses.* Of the established grasses, guinea, elephant, pangola, Barbados sour grass, the last named would appear to be more drought resistant than pangola.

106. *Soil Reclamation.* Strips were maintained in guinea grass and Gliricidia for the purpose of soil building. This vegetation is cut back seasonally and allowed to decompose in situ. There is some progress to be noted.

107. *Livestock.* On stud service one grade Holstein bull and a Large Black boar. The station became self-supporting in fodder for the first time.

108. Services recorded have been as follows:—

	1957	1958	1959
Bull	10	22	12
Boar	4	22	16

109. *Plant Production:* In spite of the fact that this Station is in an area where suitable terrain for plant production is limited, nevertheless increased production of planting material was achieved. Additional space was obtained, by boulders being blasted and the resulting craters filled with soil. Production of planting material was, as follows:—

Type of Plant	1958	1959
W.I. Limes	198	786
Orange, Washington Navel	90	750
Grapefruit, Marsh	14	172
Orange, Valencia	10	215
Coffee, Trinidad Robusta	519	250
Coffee, San Ramon	108	10

110. Planting materials distributed were as shown here under:—

	1957	1958	1959
W.I. Limes	35	169	265
Orange, Washington Navel	13	66	456
" Valencia	—	2	27
Grapefruit, Marsh	—	14	10
Coffee, Trinidad Robusta	—	414	0
Coffee, San Ramon	—	90	0
Coconuts, dwarf	—	—	31
Vegetable Seed Packets	39	269	224
Total units distributed	87	1,024	1,013

GOODWILL NURSERY

111. This propagation unit was devoted to the production of W.I. Lime plants. Three types of stocks were in use *viz*, Sour Orange, Seville Orange, Wild Grapefruit. Inspite of divided opinion on the merits of rootstocks, budded plants on sour orange stock are still much in demand by growers. The Nursery occupies slightly less than an acre. Rainfall for the year was 58.62 inches with 22.6 inches recorded for the first six months. Mild outbreaks of pests and diseases were controlled.

112. *Plant Production* was on the increase:—

Plant	Type of Stock	1958	1959
W.I. Limes	Wild Grapefruit	177	211
-do-	Sour Orange	260	820
-do-	Seville Orange	640	1,348
		1,077	2,415

113. *Plant Distribution* also showed an increase:—

Type of Stock		1957	1958	1959
W.I. Limes	Wild Grapefruit	37	33	320
—do—	Sour Orange	246	80	719
—do—	Seville Orange	30	505	1,051
		313	618	2,090

STAFF

114. *Changes:* T. G. Cuffy, Soil Conservation Instructor was transferred to the Southern District.

A. E Samuel, Agricultural Instructor Grade I was transferred to the Northern District.

L. Laronde, Soil Conservation Instructor replaced T. G. Cuffy.

Resignations: V. Didier, Soil Conservation Instructor, A. D. Wiltshire, Soil Conservation Instructor, T. H. Henderson, Agricultural Instructor.

Staff as at 31/12/59

P. Bobb, Agricultural Instructor Grade		III	St. Joseph
R. S. Maynard	—do—	" III	Colihaut
E. Daniel	—do—	" III	Massacre
J. B. Colaire	—do—	" II	Roseau
A. Guye	—do—	" I	—do—
W. Williams Soil Conservation Instructor			Salisbury
L. Laronde	—do—		Massacre
B. Winston	—do—		Roseau
E. D. Coipel	—do—		Petite Soufriere
A. J. Felix	—do—		Castle Bruce

SOUTHERN DISTRICT

115. *Weather:* Climatic conditions prevailing throughout the year can be expressed as typical sub-tropical. There was a favourable distribution of rainfall, most of it falling during the last three months of the year with no distinct dry spells. Thunderstorms were few and mild and only one wind-storm was recorded. Rainfall figures for Grand bay and Laplaine Stations are shown in Appendix I.

EXTENSION STAFF CHANGES AND MOVEMENTS

116. The following field officers served in this district during the period:—

Name	Office	District
W. G. Coipel	Grade I Agricultural Instructor	Pte. Michel
L. M. Christian	" II " "	Giraudel
R. J. Cuffy	" II " "	Riviere Cyrique
T. C. A. Cuffy	Soil Conservation Instructor	Soufriere
F. M. Joseph	Grade III Ag. Agricultural Instructor	Grandbay
J. C. Henderson	Soil Conservation Instructor i/c Station	Grandbay
P. S. James	" " " i/c "	La Plaine

Mr. Coipel was called away from the district on two occasions, when he acted as Cocoa Assistant in the first place and then as Livestock Officer. He served in the district for approximately five months. Mr. Joseph is a Temporary Acting Instructor to replace Mr. Mc. Intyre. Mr. T. C. A. Cuffy was posted at Soufriere to cope with increasing demands for assistance.

EXTENSION STAFF ACTIVITIES

117. During the year a total of 1,434 visits were paid to holdings, of which 965 were for demonstration purposes, as follows:—

Soil Conservation operations	329
Lining for plants	278
Pruning cocoa and citrus	155
Planting	173
Pest and disease control	11
Fertilizing	19
	965

118. As usual the emphasis was laid on soil conservation measures, and a total of 14,660 ft. of grass barriers and drains were constructed. Other visits included general inspections for noting progress of operations and suitability of areas for establishing crops. These numbered 386 and were carried out during the first part of the year. 86 visits were paid to livestock, pangola grass and bananas for the purpose of giving advice on caring and handling of livestock and the management of Pangola pastures.

DEMONSTRATION PLOTS

119. Eight demonstration plots under a soil conservation scheme were established in the district on peasants holdings. These were aimed at giving the peasants and their neighbours a practical knowledge of cultivating their holdings with a view to conserving their top soil. Establishment of these plots was taken on jointly by the Department and the small holder, on the mutual understanding that the crops reaped were wholly and solely the peasant's reward. Operational costs on the various holdings are, as follows:—

Terrance Thomas Augustus Thomas	Montin, Grand Bay	$540.79
Owen Hill	Tranquility	522.16
Thomas Henderson	Pichelin	849.87
Harry Vigilant	Rosalie Land Settlement	84.85
Mc.Donald Lawrence	" "	94.36
Ellay Beaupierre	La Plaine	87.50
Maurice Laurent	Hagley, Grand Bay	564.65

120. There was much difficulty in obtaining labour for initiating demonstration plots especially in Soufriere and Pte. Michel. At Tranquility a start was made with labour available in the area, but subsequently workers had to be transported from Grandbay to complete the Establishment of the plot.

PANGOLA GRASS TRIALS

121. The establishment of 5 acres of pangola grass at Palmist Estate was another project initiated by this Department. To date an area of approximately 24 acres has been planted out and a further 15 acres will complete the area allocated for Pangola Pasture. Other trial plots have been laid down by farmers in various localities with the Department giving assistance in the form of planting material.

CROP EXTENSIONS

122. The establishment of banana fields far exceeded that of all the other crops collectively, and it is estimated that an additional 650 new acres were planted in bananas in 1959. The Windward coastal districts have made considerable contribution to this extension due to the construction of the road from Pond Casse to Rosalie.

123. New plantings of limes totalled some 25 acres, all of which were made in banana cultivations. The demand for cocoa plants was low as compared with previous years, and it is estimated that only 75 new acres were planted during the period under review.

Other crops accounted for approximately 120 acres, all interplanted with banana cultivations.

SCHOOL GARDENS

124. The Department is giving much help to the maintenance of school gardens. These had been neglected in the past and for the first time an island wide school garden competition was held with the hope of reviving a much needed part of the schools' curriculum.

LIVESTOCK

125. Attention was paid to livestock with particular reference to housing of poultry. Increasing interest is being paid to raising of imported breeds of high quality poultry. The pig revolving scheme was not successful due largely to lack of adequate supplies of pig food. The cattle population appears to be on the decline as farmers divert more and more attention to the growing of bananas at the expense of all else.

OTHER ITEMS OF INTEREST

126. In the windward coastal areas where 3—F groups have been functioning actively, the Department maintains close collaboration with the Social Welfare Department in these projects. Assistance in the form of demonstrations, lectures and donation of prizes on their Achievement Days has been readily given and well received.

127. With the increasing exodus of agricultural workers and peasants to the United Kingdom it is feared that expansion of the banana industry will be slowed down. The general complaint among farmers is indicative of an inadequate labour force which is becoming selective in its occupation and demanding in its rates.

AGRICULTURAL STATIONS

128. There are two Agricultural stations in this district, one at Grand Bay and the other at La Plaine. These stations were established to serve the agricultural community as:—

1. Centres of demonstration in soil conservation measures and modern cultural techniques.
2. Plant propagation centres for economic crops.
3. Stud centres for improved and recommended breeds, of livestock.
4. Research and observation centres.
5. Demonstrations of crop and livestock husbandry.

There is a resident instructor on each station.

129. There is in the crop husbandry section a strip cropping rotation plan including fodder grass working on a three year crop rotation incorporating root crops, cereals and legumes. There is also an orchard section including citrus, cocoa, coconuts and, recently, coffee. There are also trial plots of bananas and root crops. Paddocks have also been planted in pangola grass.

130. The current expenditure on the stations for the year was as follows:—

Labour	Grandbay	La Plaine	Total
	$	$	$
Agricultural Maintenance ..	7,372.31	4,007.85	11,380.16
Plant Distribution	4,697.65	1,074.65	5,772.30

131. There was an increase in expenditure over the previous year , especially under Agricultural Maintenance. There was also a corresponding increase in the sale of produce which brought revenue of $1,447.63, with bananas contributing the major portion. Much attention was paid to the spacing and manuring of bananas laid down in trial plots, and this no doubt accounts for the yield of 23,688½ lbs. sold for export. Because of the difficulty of transportation, no bananas are grown at La Plaine Agricultural Station.

132. In the strip cropping section the rotation of root crops, with cereals and legumes was strictly adhered to, particular attention being paid to soil conservation measures. Trials are being made with sweet potatoes to determine the best yielding varieties, and at present there are six varieties under observation. Table III shows yield of crops harvested in 1959.

133. In the plant propagation section where the chief concern is the production of West Indian Limes and grapefruit plants, distribution was still unable to satisfy local demands. A total of 3,360 ime plants were distributed as compared with 1,600 in 1958, but only 689 grapefruit plants left the

nurseries. The demand for grapefruit is increasing and it is no wonder judging from the high price paid for the Marsh seedless variety. Because of poor germination of the Robusta coffee it was not possible to distribute more than a total of 775 plants. Nevertheless demand for coffee seedlings is low. Other plants distributed are shown in Appendix II.

134. The maintenance of studs is charged to agricultural maintenance under current expenditure. Stud services were relatively low on both stations and the following are recorded for 1959.

Studs	Grandbay	La Plaine
Bull	15	14
Boar	9	3
Ram	—	—
Buck	—	—

135. At La Plaine Station a cocoa foreman was appointed to take charge of the propagating unit built in 1957 to produce clonal cuttings for distribution in the area. Repairs to the buildings on the Grandbay station were made, and the main road attended to. What is necessary and very vital to the maintenance of the nurseries is the installation of a piped water supply.

136. TABLE I

RAINFALL RECORD FOR THE YEAR 1959 IN INCHES

	Grandbay	La. Plaine
January ..	6.97	6.33
February ..	5.65	5.86
March ..	6.11	7.21
April ..	7.61	3.29
May ..	7.42	7.05
June ..	5.15	6.33
July ..	8.33	6.72
August ..	10.07	12.53
September ..	9.12	12.02
October ..	11.37	14.57
November ..	16.45	14.74
December ..	9.27	12.67
	103.52	109.32

TABLE II.

137. PLANT DISTRIBUTION FOR 1959

Planting Material	Grandbay	La Plaine
W. I. Limes ..	3,198	162
Marsh Grapefruit ..	484	205
Other Grapefruit ..	22	20
W. N. Oranges ..	60	20
Other Oranges ..	35	2
Julie Mango ..	19	8
Robusta Coffee ..	165	610
Avocado Pears ..	26	11
Dwarf Coconuts ..	45	15
Pangola Grass Cuttings (free) ..	88	15
Cassava Cuttings (free) ..	200	450
Sweet Potato Cuttings (free) ..	1500	500

TABLE III

138. YIELDS OF CROPS HARVESTED IN 1959

Crops	Grandbay	La Plaine
Bananas	23,688 lbs.	—
Yams	2,547 "	1,528 lbs.
Sweet Potatoes	593 "	937 lbs.
Dasheen	473 "	——
Sugarcane	5½ cords	——
Limes	14½ barrels	——
Corn	760 lbs.	886 lbs.
Ginger	—	391 "
Tous Les Mois Rhizomes	—	932 "
Green Vegetables	74 lbs.	396 "

TABLE IV

139. RETURN OF SALES FOR YEAR 1959

	Grandbay	LaPlaine
Produce	$1,302.73	$144.90
Vegetable Seeds	2.60	3.94
Stud Services	16.32	10.75
Planting Materials	215.35	31.71
Medicines	—	1.08
Coals	9.00	—
	$1,546.00	$192.38

LIVESTOCK

140. *General:* Dominica still suffers badly from a shortage of Livestock of all kinds. A sample survey in 1954 revealed that there were approximately some 5,000 cattle in Dominica. When one assumes that in a year six adult people consume as much meat as is supplied by one three year old bullock and there are some 60,000 people resident in Dominica, and only about 1,000 cattle could be sold per annum for meat, it becomes obvious that there is a terrible shortage of local fresh meat, and that this shortage will continue unless the Livestock numbers can be raised. If every peasant were to keep a cow and if every estate owner were to keep a nucleus of Livestock, Dominica could have enough local fresh meat to supply its own needs and would not have to resort to importing frozen meat. Such a state of affairs, would incidentally, reduce imports by some $150,000 per annum. Many people believe that in this "age of bananas" it is uneconomical to keep livestock but alas they are badly misinformed. Half an acre of good pangola grass will be sufficient to keep a milking cow and to fatten a bullock. A reasonable diary cow will give some 400 gallons of milk in a year or at 14c. per pint some $448 per annum which means in revenue some $1.22 per day which, for the one hour a day spent on milking and watering the cow, compares very favourably with the daily labour rates! A bullock on half an acre of pangola grass will take two and a half years to fatten and should weigh on average some 800 lbs. which at 27c. per lb. means $216 or some 20c. per day for very little entailed—watering, treating for ticks etc. Government provides free of charge at the Central Livestock Farm pangola cuttings for establishing pastures, and it is hoped that in future years the public will make more use of this service. In 1959 only four people took advantage of this service!

THE CENTRAL LIVESTOCK FARM

141. The Central Livestock Farm at Goodwill continues to develop and supply the public with limited quantities of breeding stock, but its administration suffered from the fact that there were changes of Farm Managers and hence management. Milk and egg sales increased from $8,257.00 in 1958 to $10,030.00 in 1959. However, the production of breeding stock, the main purpose for which the farm is intended, was less in 1959 than 1958. The table below compares the production of 1958 with that of 1959.

	Births				Stud Services			Production	
	Cattle	Pigs	Sheep & Goat	Poultry	Bulls	Boars	Sheep & Goat	Milk gallons	Eggs
1958	17	54	4	250	77	27	19	62,908	—
1959	10	58	2	53	62	17	5	71,355	17,403

142. Sale of Animals at Central Livestock Farm:—

	Sales				Total
	Cattle	Pigs	Sheep & Goat	Poultry	Revenue $
1958	7	57	4	201	8,257
1959	12	46	2	162	10,030

143. Four cockrels, 55 hens 8 pullets, 6 piglets and one calf died in 1959 from disease and injury.

144. The overall report of production and sales of livestock for the year 1959 at the Central Livestock Farm is far from good but the prospects for 1960 with the advent of the new scheme are excellent. In 1960 it is intended to repair the boundary fences to build a concrete yard for the cattle; to build a new chicken house which will act as a demonstration to the public as to the best way to keep chickens in a tropical climate; to purchase day-old chicks from U.S.A.; to increase the milk production and sale of calves; to install milk cooling equipment and a steam sterilising chest; to re-test the herd against Tuberculosis; and to purchase new livestock for stud purposes.

145. *Livestock Extension:* In 1959 public interest in the rearing of livestock was very poor, and it is hoped that in future years more interest will be shown. Whenever possible the Department of Agriculture will help livestock owners. It is hoped that more people will come to the Central Livestock Farm to obtain pangola grass cuttings, to use the stud services, and to seek advice on the rearing of stock.

COCOA PROPAGATION

146. During the period under review the construction programme entered its final stage with the completion of the Propagating unit on the Agricultural Station at La Plaine, together with the erection of a Cocoa Foreman's quarters and storeroom.

147. Hardening and Storage Sheds at Hillsborough, Londonderry and Botanical Gardens were extended in order to hold larger numbers of carryover plants than in previous years. Nurseries were extended at Londonderry and La Plaine and certain sections re-planted with new clones at Hillsborough.

148. Despite the age and limited acreage of some nurseries efficient production standards were maintained.

149. The overall out-put for 3 stations and the number of plants distributed is set out below.

PROPAGATION AND DISTRIBUTION

	Hills-borough	London-derry	Botanic Gardens	Totals	Overall Percentages
No. of cuttings set ..	68,480	27,859	15,827	112,164	—
" Rooted	40,773	17,055	13,100	70,928	63%
" Hardened ..	36,870	14,219	11,947	63,036	87%
No. of plants which died in H. & S. sheds	4,252	2,736	2,431	9,419	24%
Total No. of plants stored in H/S sheds	50,765	18,885	14,222	83,870	—
Total No. of plants produced	36,521	16,019	11,791	63,103	56%
Rooting percentages ..	59%	62%	82%	—	68%
Overall efficiency	53%	50%	74%	—	59%
Carry-overs 1958	13,895	1,800	2,275	17,970	—
On hand in Storage sheds at 31/12/59	17,702	6,890	6,084	30,676	

DISTRIBUTION SUMMARY

Monthly Distribution 1959	Hills-borough	London-derry	Botanic Gardens	Total
January	2,520	300	Nil	2,820
February	1,100	50	"	1,150
March	50	350	"	400
April	2,000	250	210	2,460
May	Nil	1,710	782	2,492
June	200	2,050	157	2,407
July	8,650	1,418	656	10,704
August	2,627	2,781	536	5,964
September	4,036	75	810	4,921
October	3,770	—	351	4,121
November	7,418	50	1,162	8,630
December	1,650	845	520	3,015
Total for Year	34,021	9,879	5,184	49,084

150. DESTINATION

Northern District	14,122	9,879	100	24,101
Southern "	1,020	—	2,917	3,937
Central "	18,879	—	2,167	21,046
	34,021	9,879	5,184	49,084

151. SUMMARY OF DISTRIBUTION FROM COMMENCEMENT OF SCHEME

1949—50 Classified Est.	2,724	Classified Small Grs.	1,863	4,587
1951 " "	4,442	" " "	3,848	8,290
1952 " "	3,400	" " "	1,899	5,299
1953 " "	9,620	" " "	10,956	20,576
1954 " "	13,759	" " "	8,753	22,512
1955 " "	9,068	" " "	6,300	15,368
1956 " "	8,146	" " "	9,596	17,742
1957 " "	9,322	" " "	12,922	22,244
1958 " "	18,256	" " "	28,348	46,604
1959 " "	22,343	" " "	26,256	48,599
Totals for 10 years	101,080		110,741	211,821

A glance at this Summary will indicate trend of Supply and Demand

INTRODUCTION OF CLONES

152. During the three year consignments of clones (totalling 511 stem-cuttings) were received from St. Vincent. Two consignments were in poor condition and affected with "Sooty Mould" and the other arrived as dead wood. Most of the clones were new introductions. They were as follows:—

I.C.S. 43, 47, 75, 81 and 61
G.S. 18
I.M.C. 67
S.C.A. 6 and 12

153. A small number of rooted cuttings were raised from ICS 43, 47, 75; GS 18; SCA 6 and SCA 12. IMC 67 was already represented in the Hillsborough Nurseries. The other clones were planted out late in the year, at Hillsborough and should be ready for multiplication late in 1960.

154. Over five thousand seedlings of a S.C.A. 6 hybrid were raised at Hillsborough, Londonderry and the Botanical Gardens for distribution to growers from a consignment received from Trinidad in November.

Seeds were also distributed to some 19 farmers in lots of 100—500 each, but unfortunately germination was poor.

155. CLONES PLANTED IN NURSERIES.

..Londonderry—Extension of Nurseries

ICS:	1, 39, 40, 46, 84	480 plants
IMC:	67	96 "
DS:	1	96 "

LaPlaine Extension of Nurseries

ICS:	1, 39, 40, 60, 95	83 plants
DS:	1, 3 (supplies)	21 "
GS:	29	44 "

PRUNING

156. Demonstrations were given in cocoa growing on estates and peasant holdings by members of the Extension Staff and others employed on Cocoa Propagation Stations. There is, however, a good deal of ground to be covered especially amongst small growers situated in the interior and on isolated holdings.

157. Mention was made in the 1958 report of growers complaining of lack of guidance with regards cultivation of clonal cocoa. This was due mainly to shortage of field staff to follow-up the distribution of plants. It must also be mentioned that the large estates, in general, have failed to adopt the standards necessary for the proper establishment of clonal cocoa from rooted cuttings. It is therefore not surprising that the crops they have so far reaped have failed to come up to expectation.

CROWN LANDS DIVISION

158. The objectives of the scheme for the control of Crown Lands continue to be the same, viz:—

(i) To anchor squatters on reasonably good land;
(ii) To stop further encroachment on Crown Lands, especially in the Forest Reserves;
(iii) To stop the evils of shifting cultuvation; and
(iv) To enforce adequate measures of control and to institute soil conservation works.

159. The aims of the scheme are being implemented accordingly. The more orderly settlement of squatters, hitherto scattered over wide areas, has proved very encouraging, and will tend to bring about more effective agricultural supervision, better land use and should also result in reduced costs in the provision of roads and other amenities.

160. The Commissioner for Agricultural Development continued to maintain administrative control of Crown Lands while the Crown Surveyor excercised technical control over Surveyors and survey matters. The scheme provides for the employment of the following personnel:—

1 Crown Lands Officer
4 Surveyors
1 Draughtsman
14 Soil Conservation Instructors
1 2nd Class Clerk.

161. During the year under review the scheme operated with only two surveyors and twelve Soil Conservation Instructors. These instructors were part time engaged with the extension services division of the Department of Agriculture, assisting and advising the Farmers in proper cultural practices.

162. The change in the policy regarding the disposal of Crown Lands from outright sale to restricted freehold, which was decided on in 1958, has so far not been implemented. Steps are being taken to make provisions for this policy decision in the new Crown Lands Ordinance and Regulations which are being prepared. The proposed new policy calls for the disposal of Crown Lands by lease in the first instance for periods of five to ten years with the option to purchase, after having met with certain minimum developments required. The preparation of the new Crown Lands Ordinance is also being done with a view to providing separately for the administration of Crown Lands.

163. During the year under review, no new settlements were started but work continued on the computation of surveys and preparation of plans for Hampstead, Crapaud Hall and Richmond Block Settlements. The Constant Spring area comprising approximately 200 acres was surveyed and divided into 22 lots. The Ravine Pierre—Salisbury survey was recommenced, and approximately 300 acres of Crown Lands are in process of division into lots. Approximately 200 acres of the Rosalie Leasehold Settlement were sub-divided into 80 lots and allotted to tenants. Seventy-three (73) lots in the Crapaud Hall Settlement and fifteen (15) in the Richmond Settlement were re-checked. The Mountain surround traverse comprising approximately 400 acres was completed.

164. The following figures indicate the progress made in respect of sales of Crown Lands to the end of the year, 1959:—

Applications submitted to date			3300
No. of titles issued	178		
No. of Sales approved	878		
No. of Squatters	500		
No. in occupation of land		1556	
Sales not approved		633	
No. now receiving attention		633	2822
No. of new applicants			478

165. *Surveys:*

Richmond Settlement	361 acres	32 lots
Cashimona "	53 "	7 "
Holmwood "	70.2 "	8 "
Terre Ferme "	480 "	36 "
Stone Hill "	594 "	59 "
Crapaud Hall "	1,400 "	122 "
Rosalie Leasehold settlement	512 "	32 "
Cregg-Crown settlement (incomplete)	1,200 "	24 "
Hampstead "	1,500 "	100 "
Constant Springs	200 "	22 "
Ravine Pierre (incomplete)	300 "	—
Mountain (incomplete)	400 "	—

Minor Surveys:

Northern District	277 acres	34 lots
New Eastern District road (Rosalie)	206 "	5 "
En Haut Jean	120 "	15 "
Eastern District	134 "	11 "

FOREST SERVICE

166. The following guiding principles have been the objectives of the Forest Service:—

(a) The execution, together with other Departments, of a Land Use Survey of Dominica to provide the necessary data for land planning;
(b) On completion of (*a*) to draw up a complete land allocation and conservation policy for Dominica;
(c) To carry out Forest Reservation and to manage these Reserves in such a manner as to fulfil their protective function in the interests of soil and water conservation, and at the same time to provide maximum outturn of forest produce on the basis of a sustained yield;

(d) To carry out research in silviculture, and utilization of forest products;
(e) To educate and train subordinate staff and the public to the benefit of a properly implemented Forest Policy, and to the efficient use of forest products,
(f) To encourage private forestry and to assist in establishing conservative management;
(g) To protect nature.

167. *The Forest Estate.*

(i) *Crown Lands:* Release of Crown Lands along the Rosalie and Castle Bruce roads continued during this period. Lands were also released for sale in the Fond Fig, Maclarken Mountain and other areas. Care has been taken to reserve areas with steep slopes and areas unsuitable for Agriculture.

(ii) *Private Lands:* Advice and assistance in establishing forest nurseries and planting trees etc. was given by officers of this Department to estate owners in different parts of the island. Small quantities of seed, both indigenous and exotic, were supplied to some estate owners in the course of 1959.

168. *Survey, Demarcation and Enumeration:* Clearing of the proposed boundaries of the Morne Trois Pitons and Morne Governor Forest Reserves continued throughout the year.

169. *Communication and Buildings:* Work on the Castle Bruce and Rosalie roads and on the Vielle Case—Penville road continues. The Governor road is being extended as far as Clorie Gutter.

170. *Protection:* Patrols and inspections for control and protection of Water Catchment areas and Forest Produce etc. were carried out during this period.

171. *Maintenance of Boundaries:* The boundaries of the Transinsular road Forest Reserve, the Roseau River Catchment Reserve and the Morne Diablotin Forest Reserve were maintained during this period.

172. *Silviculture:* The Silviculture Scheme financed from a £3,000 C.D. & W. grant which started in 1959, continued during the year. Nurseries at La Plaine, Gleau Gommier, Crapaudhall, Londonderry, Hampstead and the Cabrits were maintained throughout the year. Sample plots of Blue Mahaut, Teak, White and Red Cedar were maintained and extended in 1959 at Palmiste, Bois Migo, Gleau Gommier, Hampstead and the Cabrits.

(a) *Seed Collection:* Seed of valuable local species were collected during the year. Some of these seeds were distributed to owners of private lands and small quantities exported. Several pounds of White Cedar and Caconier seed collected in the Portsmouth Range were broadcast in sample plots at the Cabrits.

(b) *Nurseries:* New nurseries were started at Crapaudhall, Gleau Gommier and Hampstead in 1959. Seed of Teak, Blue Mahaut and Red Cedar were sown and fairly good results obtained. Small White Cedar wildings were planted in the nursery at Hampstead. Results, so far, are satisfactory. These seedlings are to be planted in plots on the steep slopes at Hampstead Crown Lands.

(c) *Plantations.* Sample plots of Blue Mahaut at Gleau Gommier, Palmiste and Bois Migo, were extended, and further trials of Teak were carried out at the Cabrits. New sample plots of Teak, White Cedar and Red Cedar were started at Hampstead in 1959.

173. *Utilization:* There was very little increase in timber sales on Crown Lands, and the number of pit-sawyers was much the same as in 1958.

174. *Production and Trade:*

	Crown Lands	Logs Cu. Ft.	Sawn Cu. Ft.	Hewn Cu. Ft.
1956	”	366	4,637	—
1957	”	4,465	5,052	533
1958	”	1,466	5,447	402
1959	”	408	8,500	360

Revenue:					
	1956	Forest Service receipts	.. .. ..	$ 885.73
	1957	” ” ”	.. .. ..	1,474.00
	1958	” ” ”	.. .. ..	1,309.00
	1959	” ” ”	.. .. ..	1,428.81

175. *Education:* Talks on Forestry at schools and to the public in villages were given by the Forest Supervisor during this period.

176. *Staff:* The Staff in 1959 was as follows:—

J. M. Cave	Chief Forest Officer (Commissioner for Agricultural Development)	
C. O. Hill	Forest Supervisor	
P. J. Mellow	Forest Ranger,	Roseau Range
R. E. James	" "	Portsmouth Range
H. C. Joseph	" "	La Plaine "
E. Baptiste	" "	Central "
S. Mathew	" Guard	
B. Williams	" "	
H. A. Emanuel	" "	
F. Tongue	" "	
C. R. Julien	" "	
Q. Greenaway	" "	
C. Vigilant	" "	
A. C. Sorhaindo	" "	
R. Jno. Charles	" "	
C. M. Lewis	Clerk	
C. Lartigue	"	

177. FISHERIES DIVISION

The Fisheries Division of the Department of Agriculture, was established through funds provided under C.D. & W. Scheme D. 3462. The following staff was provided:—A Fishery Officer, a mechanic and assistant mechanic, a Clerk, and crew of 2 men.

178. Orders were placed with reputable English firms for the purchase of fishing gear and marine equipment for the Research Launch and all launches to be built and sold by Government on hire purchase terms to selected fishermen. The Research Launch, Hark Forard, is to be equipped with the following gear:—

(i) Very Pistol
(ii) Kelvin Hughs Echo Sounder M. S. 28
(iii) Ship to shore radio telephone—"Pye Dolphin"
(iv) Barometer and clock
(v) Compass
(vi) Course setting protractor
(vii) Life Buoys.

179. The Scheme also provides for the construction and equipping of eight fishing launches which are to be handed over to responsible fishermen on hire purchase terms. Each launch will be equipped with a diesel engine, suit of sails, fishing lines, water kegs and gill nets. All gear and equipment have already arrived and are in stock waiting completion of the launches.

180. *Training of Fishermen:* It was not possible to do any extensive training of fishermen during the latter part of the year, due to the Research Launch having to be sent to Barbados to undergo certain urgent repairs and also for the installation of the marine equipment listed above. There are however over thirty-six applicants for these fishing launches and many of them have had the opportunity of undergoing some training in a small launch—"Skip Jack". They were taught the methods of using the flying fish gill nets, now largely used in Barbados, and also the long line fishing for tuna fish. There was some difficulty experienced, however, as most of the trainees are boat owners and family men and could not really leave their canoes on the beach for a week. They had the opportunity of being instructed by both the Marine Mechanic and the Fishery Officer in the manipulation of the engine and how to overcome minor engine troubles. They were shown how to rig the sails and everyone had a chance to operate the engine and rigging of sails. The Fishery Officer had discussions with numerous fishermen of different fishing villages and they have all expressed a desire for training.

RESEARCH

181. Research work undertaken was of necessity limited due to the time spent training individuals, and supervising the construction of the launches at Portsmouth and Anse de Mai.

182. During the training of the fishermen "Red Pepper" was used as bait. It proved very successful in comparison with the Ballahou bait, commonly used.

183. Depth Soundings were taken along the western coast of the island from Scotts Head to Pointe Rounde and it was found that there are quite a few shallows on the island shelf where red-fish should be plentiful. This information together with the marking of the spots have been released to the fisher-men, and some have met with great success especially off the points of Scotts Head and Pointe Rounde. It was further observed that in the harbour of Portsmouth at depths between 40—80 fathoms fish were found to be plentiful but of a very small size.

184. There is enough evidence to show that Kingfish abound on the shallows between Canefield and Colihaut. Towings along this area with Ballahou baits were very successful.

FISH MARKETS AND RECORDS

185. It is not possible to submit figures of fish landings for the whole island as very little fish passes through the markets. The situation at Portsmouth is much better than at Roseau. The following are the recorded figures of fish landings for Roseau and Portsmouth:—

Roseau	..13,368 lbs.	Fish
Portsmouth	.. 52,670 lbs.	Fish.

186. The Research vessel 'Hark Forrard' accounted for 27.31 lbs. of the fish sold at the Roseau Market.

CONSTRUCTION OF LAUNCHES:

187. Contracts were issued to three Shipwrights for the construction of seven launches. These launches being built at Portsmouth.

Five of the seven launches were completed by the end of the year. Progress made in building launches has been very slow due to lack of shipwrights, adverse weather conditions, and poor transport facilities.

188. VISITORS

A. F. Mc.Kenzie, o.b.e.	—	Federal Agricultural Adviser.
M. Milliken	—	" Agricultural Economist.
J. C. Rose m.c.	—	" Housing Adviser.
Dr. E. Hess	—	" Fisheries Adviser
K. H. Straw	—	" Senior Economist.
A. S. L. Barnes	—	" Forestry Adviser
P. Aitken	—	" Research Assistant, Federal Economic Planning Division.
D. Solomon	—	" Administrative Officer.
G. M. Roddam m.b.e.	—	Deputy Agricultural Adviser to Secretary of State for the Colonies.
J. O. Traung	—	Fisheries Division F. A. O.
Hon. F. B. Ricketts	—	Federal Minister of Natural Resources and Agriculture.
K. V. W. Nicholls	—	Deputy Director British Caribbean Meteorological Services.
L. Densham	—	Member for Jamaica of the Federal Parliament.

OTHER EVENTS

189. The Commissioner for Agricultural Development, Mr. J. M. Cave, attended as Adviser to the Minister for Trade & Production, the conference of Natural Resources and Agriculture in Trinidad from 14th to 15th January, 1960.

The Agricultural Superintendent, Mr. H. A. L. Francis, was seconded to act as Assistant Secretary, Dominica Banana Growers' Association, from 1st January to 30th April.

A Seminar on Agricultural Extension Work, sponsored and conducted by I.C.A. Participants was held in Dominica from 23rd to 27th March.

The Commissioner for Agricultural Development, Mr. J. M. Cave, attended the meeting of Directors of Agriculture & Senior Members of Agricultural Departments at Cambridge from 12th to 17th July, while on long leave in the United Kingdom.

Mr. R. S. Fadelle, Agricultural Assistant, attended a Course in connection with Agricultural Statistics held in Trinidad from 19th to 24th October.

The Agricultural Superintendent, Mr. H. A. L. Francis, attended meeting of the Official Standing Committee on Agriculture, Animal Health and Husbandry, Forestry and Fisheries, held in British Guiana from the 16th to 21st November.

Mr. E. S. Lancaster, Agricultural Instructor, attended the Latin American Workshop in Marketing, and the Co-operative Seminar held in Jamaica in November.

APPENDIX I

PRINCIPAL EXPORTS FOR THE YEAR 1959

Commodity & Destination	Quantity		F.O.B. Value in Thousands in Dollars
	Unit	1959	1959
Fresh Fruit			
Bananas:—			
United Kingdom	1,000 stem	2,031	4,505
British West Indies	" "	14	13
Other Countries	" "	4	3
Total	1,000 stem	2,049	4,505
Grapefruit:—			
United Kingdom	C/Crate	20,479	131
British West Indies	"	2,521	8
Other Countries	"	28	—
Total	C/crate	23,028	139
Oranges:—			
United Kingdom	C/crate	1,928	10
British West Indies	"	3,207	18
Other Countries	"	151	1
Total	C/crate	5,286	29
Preserved Fruits			
Canned Grapefruit Segments:—			
United Kingdom	1,000 lbs.	137	30
New Zealand	" "	—	—
British Guiana	" "	—	—
British West Indies	" "	2	1
Canada	" "	—	—
Total	1,000 lbs.	139	31
Preserved Fruit			
Pomace of Dried Lime Skin:—			
United Kingdom	1,000 lbs.	153	39
Total	1,000 lbs.	153	39
Other Preserved Lime Skin:—			
United Kingdom	1,000 lbs.	—	—
Total	1,000 lbs.	—	—
Lime Juice: Settled			
United Kingdom	1,000 gals.	244	327
Australia & New Zealand	" "	7	10
British West Indies	" "	1	1
Canada	" "	27	42
U.S. America	" "	14	25
Other Countries (1)	" "	1	2
Total	1,000 gals.	294	407
Lime Juice: Top Pulp			
United Kingdom	1,000 gals	106	198
Canada	" "	1	2
U.S. America	" "	1	1
Bermuda	" "	—	—
Total	1,000 gals.	108	201
Cocoa			
Cocoa Beans:—			
Canada	1,000 lbs.	189	102
U.S. America	" "	111	61
United Kingdom	" "	15	7
West Germany	" "	—	—
Holland	" "	—	—
Total	1,000 lbs.	315	170
Spices			
Vanilla Beans:—			
Bermuda	100 lbs.	2	3
U.S. America	" "	96	133
Canada	" "	14	20
British West Indies	" "	—	—
Total	100 lbs.	112	156
Copra			
Copra:—			
Barbados	Long Ton	979	307
Total	Long Ton	979	307

APPENDIX 1—*Continued*

PRINCIPAL EXPORTS FOR THE YEAR 1959

Commodity & Destination	Quantity		F.O.B. Value in Thousands of Dollars
	Unit	1959	1959
Essential Oils			
Bay Oil:—			
U.S. America	1,000 lbs.	15	42
United Kingdom	" "	11	25
Other Countries	" "	3	9
Total	1,000 lbs.	29	76
Distilled Lime Oil			
United Kingdom	1,000 lbs.	16	185
Australia	" "	3	40
Other Countries	" "	1	8
Total	1,000 lbs.	20	233
Floor Mats			
Mats of Straw:—			
British West Indies	1,000 sq. ft.	59	29
British Guiana	"	1	1
U.S. America	"	12	7
Bermuda	"	15	8
U.S. Dependencies	"	15	10
Other Countries	"	4	2
Total	1000 sq. ft.	106	57

APPENDIX II

METEOROLOGICAL RECORD

1959 Month	Rel. Hum. Mean		Max. Temp. Mean	Min. Mean	Barometric Pressure Mean	
	a.m.	p.m.	a.m.	a.m.	a.m.	p.m.
January	79	70	77	66	29.996	29.921
February	82	70	86	66	30.042	29.987
March	77	72	87	67	30.024	29.970
April	72	69	87	67	29.969	29.926
May	74	69	89	69	29.979	29.933
June	71	67	89	69	29.995	29.952
July	71	68	90	70	29.994	29.961
August	77	72	91	70	29.964	29.935
September	73	72	92	70	29.937	29.912
October	70	68	91	70	29.962	29.916
November	76	71	89	70	29.957	29.911
December	79	73	89	70	29.967	29.932
Yearly Mean	25	70	89	69	29.980	29.938

		Month	Date
Highest Barometer reading	30.107	February 13th	1959
Lowest Barometer reading	29.306	November 17th	1959
Highest Max. Temperature	99°	August 23rd	1959
Lowest Min. Temperature	61°	January 19th	1959
Greatest Rainfall in 24 hrs.	3.26	July 5th	1959

APPENDIX III

RAINFALL AT THE BOTANIC GARDENS, DOMINICA 1935—1959

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	25 years 1935--1959
	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	Mean
January ..	2.37	3.46	3.24	6.73	4.13	1.67	5.00	4.16	5.70	4.24	1.76	6.12	9.23	5.95	2.06	9.87	5.96	1.85	3.94	5.36	1.84	5.49	5.99	1.79	5.43	4.53
February ..	1.59	2.50	3.40	1.43	2.84	1.45	.47	2.25	1.01	6.89	9.14	5.86	2.07	4.54	6.44	3.59	2.92	1.59	4.89	2.57	1.12	3.64	2.75	.13	5.56	3.30
March ..	6.90	.82	1.34	2.69	4.38	2.16	2.05	.97	5.46	1.89	1.29	1.47	2·75	1.48	2.73	3.75	1.88	1.38	4.11	3.04	1.86	4.91	0.40	1.83	2.74	2.57
April ..	1.45	3.94	2.61	.72	5.62	1.00	2.82	7.14	3.34	1.65	1.11	2.88	2.61	2.11	1.46	1.89	3.84	4.25	4.55	4.49	.87	3.66	2.36	1.94	2.68	2.83
May ..	4.27	2.34	1.48	1.41	.86	1.34	5.53	4.86	3.20	4.55	1.95	8.18	5.63	4.60	2.58	10.37	13.20	4.31	7.29	2.64	3.19	3.60	1.05	6.01	1.23	4.18
June ..	5.04	6.47	6.57	19.56	4.90	4.65	5.39	9.18	6.25	7.20	6.21	7.04	4.67	6.12	13.02	12.64	10.54	9.66	6.83	5.74	6.80	10.95	3.37	13.23	2.80	7.79
July ..	13.47	18.48	5.60	13.44	7.18	7.97	13.94	13.86	6.10	12.98	11.17	6.15	11.73	12.84	11.41	10.00	8.32	13.19	16.32	11.97	7.56	8.01	16.15	14.79	9.52	11.28
August ..	8.87	10.36	6.20	27.92	6.96	6.96	7.52	11.13	10.93	9.19	9.15	9.44	5.73	8.41	9.69	1.18	10.36	9.83	8.89	11.55	7.94	11.97	8.38	10.18	7.62	9.73
September	12.93	11.14	4.40	10.77	6.52	2.55	10.62	11.76	7.99	5.74	15.43	8.34	8.09	8.67	12.75	4.90	9.69	6.25	14.35	18.08	5.95	4.44	5.44	12.27	4.18	8.93
October ..	5.43	7.65	3.74	4.48	15.42	9.00	6.98	5.91	9.69	6.39	10.90	4.40	4.02	8.40	9.32	14.14	4.80	8.04	4.95	8.15	5.43	10.11	11.80	12.20	8.77	8.84
November	3.39	12.14	20.85	12.34	5.91	10.97	12.45	24.82	5.38	9.59	2.98	13.91	7.10	9.37	2.68	8.00	7.82	9.10	6.20	8.34	9.52	10.42	21.78	5.50	5.97	9.86
December	6.24	10.84	5.43	6.14	3.57	9.96	4.81	8.47	9.60	6.81	4.33	4.34	8.67	6.97	5.81	3.62	6.74	1.91	7.43	2.38	2.16	6.83	7.62	5.61	3.81	6.00
	71.95	89.26	74.86	104.63	68.29	59.68	77.58	104.51	71.65	81.13	75.32	73.07	72.20	79.46	79.95	93.95	86.07	81.38	89.75	36.11	54.25	86.03	88.58	85.48	60.31	79.84

Average Annual Rainfall 1935—59 - 77.81 inches

APPENDIX IV

RAINFALL RETURNS—DOMINICA.

Station	Total No. of Inches
	1959
Botanic Gardens	60.31
Kings Hill Station	70.74
Bath Estate	58.12
Colihaut Agricultural Station	37.45
Central Livestock Farm	59.62
Portsmouth Agricultural Station ..	87.49
Soufriere Estate	85.49
Canefield Estate	49.81
Cocoa Station	66.73
Grand Bay Agricultural Station ..	103.52
La Plaine Agricultural Station ..	109.32
Londonderry Agricultural Station ..	74.34
Melville Hall Estate	122.21
Ridgefield Estate	112.14
Stowe Estate	110.03